

CLAIM AMENDMENTS

1. (Previously Presented) A chimeric pIX protein having at least one adenoviral pIX domain and a non-native amino acid sequence encoding a ligand that binds to a substrate present on the surface of a cell, wherein the non-native amino acid sequence constitutes the C-terminus of the chimeric protein.

2. (Cancelled)

3. (Cancelled)

² 4. (Previously Presented) The chimeric pIX protein of claim 1, wherein the ligand recognizes a CD40 protein.

³ 5. (Previously Presented) The chimeric pIX protein of claim 1, wherein the ligand is an RGD-containing or polylysine-containing sequence.

⁴ 6. (Original) The chimeric pIX protein of claim 1, wherein the non-native amino acid is constrained by a peptide loop within the chimeric protein.

¹⁰ 7. (Original) The chimeric pIX protein of claim 6, wherein the loop comprises a disulfide bond between non-adjacent amino acids of the protein.

8. (Cancelled)

¹¹ 9. (Previously Presented) A chimeric pIX protein having at least one adenoviral pIX domain and a non-native amino acid sequence encoding a ligand that binds to a substrate present on the surface of a cell, wherein the non-native amino acid sequence constitutes the N-terminus of the chimeric protein.

10. (Cancelled)

⁵ 11. (Original) The chimeric pIX protein of claim 1, wherein at least one adenoviral pIX domain consists essentially of an adenoviral pIX peptide sequence truncated at the C-terminus.

⁶ ~~12~~. (Original) The chimeric pIX protein of claim 1, wherein at least one adenoviral pIX domain consists essentially of an adenoviral pIX peptide sequence truncated at the N-terminus.

⁷ ~~13~~. (Original) The chimeric pIX protein of claim 1, comprising a first adenoviral pIX domain consisting essentially of an adenoviral pIX peptide sequence truncated at the C-terminus and a second adenoviral pIX domain consisting essentially of an adenoviral pIX peptide sequence truncated at the N-terminus.

14. (Cancelled)

¹⁶ ~~15~~. (Original) The chimeric pIX protein of claim ⁷ ~~13~~, wherein a spacer peptide domain separates the first and the second adenoviral pIX domains.

16. (Cancelled)

⁸ ~~17~~. (Original) The chimeric pIX protein of claim 1, having only one adenoviral pIX domain consisting essentially of a full-length adenoviral pIX peptide sequence.

⁹ ~~18~~. (Original) A nucleic acid encoding the chimeric pIX protein of claim 1.

¹⁷ ~~19~~. (Previously Presented) An adenoviral capsid containing a chimeric pIX protein having at least one adenoviral pIX domain and a non-native amino acid sequence, wherein the non-native amino acid sequence constitutes the C-terminus of the chimeric protein.

¹⁸ ~~20~~. (Original) The adenoviral capsid of claim ¹⁷ ~~19~~, which binds dendritic cells.

¹⁹ ~~21~~. (Original) The adenoviral capsid of claim ¹⁷ ~~19~~, comprising a mutant adenoviral fiber protein having an affinity for a native adenoviral cellular receptor of at least about an order of magnitude less than a wild-type adenoviral fiber protein.

²⁰ ~~22~~. (Original) The adenoviral capsid of claim ¹⁷ ~~19~~, comprising an adenoviral penton base protein having a mutation affecting at least one native RGD sequence.

²¹ ~~23~~. (Original) The adenoviral capsid of claim ¹⁷ ~~19~~, comprising an adenoviral hexon protein having a mutation affecting at least one native HVR sequence.

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²²
~~24.~~ (Original) The adenoviral capsid of claim ¹⁷~~19~~, lacking a native glycosylation or phosphorylation site.

²³
~~25.~~ (Original) The adenoviral capsid of claim ¹⁷~~19~~, which is conjugated to polyethylene glycol.

²⁴
~~26.~~ (Original) The adenoviral capsid of claim ¹⁷~~19~~, which elicits less immunogenicity in a host animal than does a wild-type adenovirus.

²⁵
~~27.~~ (Original) The adenoviral capsid of claim ¹⁷~~19~~, comprising a second non-adenoviral ligand conjugated to a fiber, a penton, a hexon, a protein IIIa or a protein VI.

²⁸
~~28.~~ (Original) The adenoviral capsid of claim ²⁵~~27~~, wherein the non-native amino acid is a ligand and wherein the second non-adenoviral ligand recognizes the same substrate as the non-native amino acid.

²⁶
~~29.~~ (Original) A composition of matter comprising the adenoviral capsid of claim ¹⁷~~19~~ and a nucleic acid.

30. (Cancelled)

²⁷
~~31.~~ (Original) An adenoviral vector comprising the adenoviral capsid of claim ¹⁷~~19~~ and an adenoviral genome.

²⁹
~~32.~~ (Original) The adenoviral vector of claim ²⁷~~31~~, which is replication incompetent.

³⁰
~~33.~~ (Original) The adenoviral vector of claim ²⁷~~31~~, which does not productively infect HEK-293 cells.

³¹
~~34.~~ (Original) The adenoviral vector of claim ²⁷~~31~~, wherein the adenoviral genome comprises a non-native nucleic acid for transcription.

³³
~~35.~~ (Original) The adenoviral vector of claim ³¹~~34~~, wherein the non-native nucleic acid for transcription is operably linked to a non-adenoviral promoter.

36. (Cancelled)

³⁴~~37~~ (Original) The adenoviral vector of claim ³³~~35~~, wherein the non-adenoviral promoter is a tissue-specific promoter.

³⁵~~38~~ (Original) The adenoviral vector of claim ³³~~35~~, wherein the non-adenoviral promoter is a regulable promoter.

³²~~39~~ (Original) A method of infecting a cell, comprising contacting a cell with an adenoviral vector of claim ~~31~~. ²⁷

40. (Cancelled)

41. (Cancelled)

³⁶~~42~~ (Currently Amended) ~~The chimeric pIX protein of claim 41, wherein at least one adenoviral pIX domain consists~~ A chimeric pIX protein having (i) at least one adenoviral pIX domain consisting essentially of an adenoviral pIX peptide sequence (a) truncated at the C-terminus, (b) truncated at the N-terminus, or (c) truncated at the C-terminus with a second adenoviral pIX domain consisting essentially of an adenoviral pIX peptide sequence truncated at the N-terminus, and (ii) a non-native amino acid sequence encoding an antigen, wherein the non-native amino acid sequence constitutes the C-terminus of the chimeric pIX protein or is located internally within the chimeric pIX protein.

43.-45. (Cancelled)

³⁷~~46~~ (Currently Amended) The chimeric pIX protein of claim ³⁶~~42~~ ^{[[44]]}, wherein a spacer peptide domain separates the first and the second adenoviral pIX domains.

47. (Cancelled)

³⁸~~48~~ (Currently Amended) A nucleic acid encoding the chimeric pIX protein of claim ³⁶~~42~~ ⁴¹.

¹²~~49~~ (Previously Presented) The chimeric pIX protein of claim ¹¹~~49~~, wherein the ligand is an RGD-containing or polylysine-containing sequence.

¹³~~50~~ (Previously Presented) The chimeric pIX protein of claim ¹¹~~49~~, wherein at least one adenoviral pIX domain consists essentially of an adenoviral pIX peptide sequence (a)

truncated at the C-terminus, (b) truncated at the N-terminus, or (c) truncated at the C-terminus with a second adenoviral pIX domain consisting essentially of an adenoviral pIX peptide sequence truncated at the N-terminus.

¹⁴
~~51~~. (Previously Presented) The chimeric pIX protein of claim ~~9~~, having only one adenoviral pIX domain consisting essentially of a full-length adenoviral pIX peptide sequence.

¹⁵
~~52~~. (Previously Presented) A nucleic acid encoding the chimeric pIX protein of claim ~~9~~. //

³⁹
~~53~~. (Previously Presented) An adenoviral capsid containing a chimeric pIX protein having at least one adenoviral pIX domain and a non-native amino acid sequence, wherein the non-native amino acid sequence constitutes the N-terminus of the chimeric protein.

⁴⁰
~~54~~. (Previously Presented) The adenoviral capsid of claim ~~53~~, comprising an adenoviral penton base protein having a mutation affecting at least one native RGD sequence.

⁴¹
~~55~~. (Previously Presented) An adenoviral vector comprising the adenoviral capsid of claim ~~53~~ and an adenoviral genome.

⁴²
~~56~~. (Currently Amended) A chimeric pIX protein having at least one adenoviral pIX domain and a non-native amino acid sequence encoding a ligand that binds to a substrate present on the surface of a cell, wherein the non-native amino acid sequence is located internally within the chimeric protein, and The chimeric pIX protein of claim 10, wherein the ligand is an RGD-containing or polylysine-containing sequence.

⁴³
~~57~~. (Currently Amended) A chimeric pIX protein having at least one adenoviral pIX domain and a non-native amino acid sequence encoding a ligand that binds to a substrate present on the surface of a cell, wherein the non-native amino acid sequence is located internally within the chimeric protein, and The chimeric pIX protein of claim 10, wherein at least one adenoviral pIX domain consists essentially of an adenoviral pIX peptide sequence (a) truncated at the C-terminus, (b) truncated at the N-terminus, or (c) truncated at the C-terminus with a second adenoviral pIX domain consisting essentially of an adenoviral pIX peptide sequence truncated at the N-terminus.

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⁴⁴
~~58~~. (Previously Presented) The chimeric pIX protein of claim ⁴³~~57~~, wherein at least one adenoviral pIX domain consists essentially of an adenoviral pIX peptide sequence truncated at the C-terminus with a second adenoviral pIX domain consisting essentially of an adenoviral pIX peptide sequence truncated at the N-terminus, and a spacer peptide domain separates the first and the second adenoviral pIX domains.

⁴⁵
~~59~~. (Previously Presented) The chimeric pIX protein of claim ⁴⁴~~58~~, wherein the spacer peptide domain comprises the ligand domain.

60.-62. (Cancelled)

⁴⁶
~~63~~. (Currently Amended) An adenoviral capsid comprising (a) a chimeric pIX protein having at least one adenoviral pIX domain, (b) a non-native amino acid sequence, wherein the non-native amino acid sequence is located internally within the chimeric protein, and (c) The adenoviral capsid of claim 62, comprising an adenoviral penton base protein having a mutation affecting at least one native RGD sequence.

64. (Cancelled)